PROJECT FACT SHEET

Status:

CONTRACT TITLE: Electrical Resistivity Tomography "(ERT) Measurements at Mobil Oil Company Lost Hills Oil Field, California

DATE REVIEWED: 07/19/91 **DATE REVISED:** 07/16/91

OBJECTIVE: The purpose of this research is to make an image of changes of electrical resistivity during steam injection into an oil reservoir.

CONTRACT NO:
FEW 6036
B & R CODE: AC1505100

CONTRACTOR:
Lawrence Livermore Laboratory
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Livermore CA 94550

CONTRACT PERFORMANCE PERIOD:
03/01/91 to 10/31/91
PROGRAM: Hvy Oil
RESEARCH AREA:
Enhanced Oil Recovery

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PROJECT SITE
Livermore, CA

SCHEDULE MILESTONES:

Well Drilling & Completion at Lost Hills #3 Site	06/91
Collection of Cross-Bore Electrical Resistivity Data (baseline)	06/91
Collection of Cross-Bore Electrical Resistivity Data (monitor)	09/91
Processing & Interpretation of Resistivity Images	11/91
Preparation of Technical Report	11/91

CONTR. FUNDING	FUNDING (1000'S)	DOE	OTHER	CONTRACTOR	TOTAL
	PRIOR FISCAL YRS	0.0	0.0	0.0	0.0
	FISCAL YR 1991	100.0	0.0	0.0	100.0
	FUTURE FUNDS	0.0	0.0	0.0	0.0
	TOTAL EST'D FUNDS	100.0	0.0	0.0	100.0

PROJECT DESCRIPTION: The purpose of this research is to make an image of changes in electrical resistivity due to steam injection into an oil reservoir. The project involves the drilling of two (2) shallow boreholes in the Lost Hills Field, California (depth = 200 meters) and the collection of cross-borehole electricity resistivity data before and during the injection of steam. These field measurements should provide definite information on the propagation of injected hot water and steam in the region between the boreholes.

The project is in cooperation with Mobil Oil Company, the operator of the Lost Hills Field and Mobil Research and Development.

PRESENT STATUS: The project has been initiated.

ACCOMPLISHMENTS: None to report at this time as the project has just been initiated.

BACKGROUND: As the electricity of a formation changes with temperature, pore fluid type, and saturation the displacement of the in place oil by hot water and steam has a dramatic effect on the resistivity. The recovery of the electrical resistivity distribution between boreholes before and during steam injection will most probably directly indicate the pathway and present position of the injection steam and hot water.
The Electrical Resistivity Tomograph (ERT) has been under development for the previous five years at LLNL. This capability of geophysical inversion has resulted in a transfer of underground imaging technology to other DOE programs. In the Savannah River Demonstration Stripping project, ERT has been used to monitor air stripping remediation. In the Dynamic Stripping Demonstration project, ERT has been used for monitoring the steam stripping and electrical heating phases. This work is in the engineering design phase. The purpose was to help guide soil clean up efforts at LLNL.
The Lost Hills Oil Field is presently managed by Mobil Oil Company. Mobil has agreed to allow access to the oilfield for these measurements. Mobil has also agreed to provide LLNL data relating to the reservoir being steamed and the steamflood in progress.